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SYSTEM AND METHOD FOR PLASMA PLATING

ABSTRACT OF THE DISCLOSURE

5 An exemplary system and method for plasma plating are
provided to generate a deposition layer on a substrate.
The method for plasma plating includes positioning a
substrate within a vacuum chamber, positioning a depositant
in a filament within the vacuum chamber, reducing the
pressure in the vacuum chamber to a level at or below 4
milliTorr, and introducing a gas into the vacuum chamber at
10 a rate to raise the pressure in the vacuum chamber to a
level at or between 0.1 milliTorr and 4 milliTorr. In
other embodiments, the gas is not required to be
introduced. The method also includes applying a dc signal
to the substrate at a voltage amplitude at or between 1
volt and 5000 volts, applying a radio frequency signal to
15 the substrate at a power level at or between 1 watt and 50
watts, and heating the depositant to a temperature at or
above the melting point of the depositant to generate a
plasma in the vacuum chamber. The plasma will preferably
include both positively charged gas and depositant ions
20 that will be attracted to the substrate, which will be
provided at a negative potential if the dc signal is
provided at a negative polarity.